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ABSTRACT

The convergent and discriminant validity of a wide range of cognitive and social competence measures were investigated with 400 students (7-11) stratified by race (white and black) and educational placement (regular and special education for mildly handicapped students). The majority of special education students were classified as learning disabled. As expected, the special education Ss scored substantially below regular education Ss on all academic competence indices (including the Wechsler Intelligence Scale for Children Revised and the Peabody Individual Achievement Test). The magnitude and pattern of differences among special and regular education students were quite similar for black and white Ss. Special education Ss obtained substantially lower scores on all social competence indices (including classroom sociometrics and the Adaptive Behavior Inventory for Children). The magnitude of differences among regular and special education students suggested relatively little overlap of distributions for white and black students. Discriminant function analysis suggested relatively strong convergent and discriminant validity using the criterion of handicapped child vs. regular education placement. A multitrait-multimethod analysis of the academic and social competence measures yielded less positive results, suggesting relatively high method variance and relatively low trait variance for the social competence measures. Among implications noted are that social competence measures, particularly with minority students, are likely to be valuable adjuncts to traditional assessment practices. (Author/CL)

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FINAL PROJECT REPORT[1]

Multifactored Nonbiased Assessment: Convergent and Discriminant Validity of Social and Cognitive Measures with Black and White Regular and Special Education Students

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Abstract for "Multifactored Nonbiased Assessment: Convergent and Discriminant Validity of Social and Cognitive Measures with Black and White Regular and Special Education Students"

The convergent and discriminant validity of a wide range of cognitive and social competence measures were investigated with a sample of 400 students, age 7-11. The sample was stratified by race, white and black, and educational placement, regular and special education. There were approximately 100 students in each of four groups, black regular education, black special education, white regular education, and white special education. All students in the special education sample were classified as mildly handicapped and were placed in part-time special education programs. The vast majority of these students were classified as learning disabled.

As expected, the special education students scored substantially below regular education students on all academic competence indices. These indices included the Wechsler Intelligence Scale for Children-Revised, the Peabody Individual Achievement Test, and Teacher Rating of Academic Performance. The magnitude and pattern of differences among special and regular education students was quite similar for black and white students. These findings were expected since most LD students are classified according to academic competence criteria.

Although social competence was not part of the classification criteria the special education students obtained substantially lower scores on all social, competence indices, including classroom sociometrics, the Social Behavior Assessment-Parent, the Social Behavior Assessment-Teacher, the Adaptive Behavior Inventory for Children, and the Children's Adaptive Behavior Scale. The magnitude of the differences among regular and special education students was generally in the range of 1 to 2 standard deviations for both white and black students. Differences of this magnitude suggest relatively little overlap of distributions, as well as significant social competence difficulties for most students placed in special education programs.

The discriminant function analyses further confirmed the other results in that relatively high rates of correct classification were found for both black and white students. These results suggest relatively strong convergent and discriminant validity using the criterion of handicapped child vs regular education placement.

A multitrait-multimethod analysis of the academic and social competence measures yielded less positive results. Analysis of the relationship of various measures, some using the same method of measurement but attempting to assess different traits and others using different methods of measurement to assess the same traits, suggested relatively high method variance and relatively low trait variance for the social competence measures. Caution must therefore be exercised in interpretation of results from social competence measures. Results from single measures need to be confirmed through further investigation.

The results of this study have significant implications for a number of current issues. Parents and teachers can provide valuable information in the areas of academic and social competence. Social competence measures are reliable and valid with black students. Social competence measures, particularly with minority students, are likely to be valuable adjuncts to traditional assessment practices, which are often regarded as biased against minority students.

Multifactored Nonbiased Assessment: Convergent and Discriminant Validity of Social and Cognitive Measures with Black and White Regular and Special Education Students

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INTRODUCTION

The usefulness and fairness of conventional assessment practices in special education have been questioned and severely criticized in recent years (Mercer, 1979; Salvia & Ysseldyke, 1981). The major issues have to do with the technical adequacy of commonly used instruments; the limited scope of the information that is collected; the usefulness of this information in special education classification and programming; and the fairness of these procedures when applied to ethnic or social minorities (Reschly, 1982; 1984).

In the past, the assessment information collected during the preplacement evaluation has all too often been restricted to measures of intelligence, i.e., academic aptitude (using the WISC-R or Binet), achievement (using the WRAT), and visual-motor development (using the Bender). Recent trends established by advances in various professional disciplines, by the courts, and by Federal legislation have had some effect on broadening the scope of assessment information. A multifactored assessment encompassing a wide variety of areas of development now is required (Federal Register, 1977, p. 42496-42497). Considerable progress has occurred in the assessment of achievement through the publication, and now, the widespread use of individually administered measures of achievement that meet the usual standards of technical adequacy. At present, the best measures available in terms of technical adequacy (norms, reliability, and validity) are in the areas of achievement and intelligence (Salvia & Ysseldyke, 1981). However, restriction of special education assessment to these areas is, quite properly, regarded as insufficient and controversial.

Social competencies, including social skills, emotional status, and adaptive behavior, are crucial areas of development for school age children. Social competencies are part of the classification criteria in several special education categories, and generally are viewed as important in special education programming. Moreover, assessment and consideration of social competencies has promise for reducing the alleged biases in special education classification and programming (see later section).

Unfortunately, assessment instruments in the social competence area are not as well developed, as carefully studied, nor as widely used as the assessment devices for cognitive competencies such as achievement and academic aptitude. Several instruments for assessing social competencies have been published in the last five years. Some of these instruments, particularly measures of adaptive behavior, are used increasingly during the preplacement evaluation of students considered for special education programming. However, the instruments available now reflect quite different measurement procedures (e.g., direct administration to child vs. indirect observation by a third party), different social settings (e.g., in school vs. out of school), and different respondents (e.g., teacher, peer, or parent). In addition to these questions about the relationship among different measures of social competence, there is little evidence available now on the effects of these measures on classification decisions with minority students, the effects on students already classified, and the relationship of these measures to conventional measures of achievement and academic aptitude.

This grant supported a convergent-discriminant validity study of social competence measures. Samples of majority and minority students from regular and special education programs were studied. The specific questions addressed were:

1) The relationship among different measures of the same social competence construct, e.g., adaptive behavior assessed through third party respondents vs. direct administration to child.

2) The relationship among different measures of social competence, adaptive behavior, social skills, and peer social status.

3) The relationship among social skills measures obtained from parents and teachers.

4) The relationship of social competence measures to academic aptitude, standardized achievement test performance, and teacher ratings of classroom academic achievement.

5) The effects of social competence measures on the classification status of students currently placed in special education programs.

6) The technical adequacy of various social competence measures which might be used in special education programming decisions (particularly reliability and convergent validity).

RESEARCH AND THEORY: A SYNOPSIS

In this section we will provide a brief synopsis of the relevant research and theory which provided the context for this investigation. Comprehensive reviews of the topics listed in this section as subheadings have been developed by the authors and published elsewhere. Considerably more information is provided in the review articles or the chapters cited in the various subsections.

Nonbiased Assessment

Classification and placement of minority students in special education programs have been among the most controversial issues in special education over the past fifteen years. A substantial amount of activity pertaining to this problem has appeared in the form of litigation, theory and research, and legislation. Despite all of this activity, relatively little has changed with respect to assessment practices. Part of the reason that so little has changed thus far may be due to improper definition of the problem, leading to courses of action which do not address the fundamental, underlying problem of relatively poorer performance in school settings by economically disadvantaged children and youth (Heller, Holtzman & Messick, 1982; Reschly, 1982; 1984).

Two major issues have confounded studies on bias in assessment in recent years. First, there is the issue of what constitutes bias. Bias in assessment, specifically test bias, has been conceptualized in a variety of ways. These different definitions of bias generally lead to quite different conclusions in studies involving comparisons of test performance or outcomes of test use with minority and majority students. The most frequent outcome of such studies, however, is the conclusion that conventional tests function in about the same way regardless of students' race or ethnicity. A summary of the prominent definitions of test bias and the outcomes of research to date is provided in Table 1.

The second major issue that has confounded research on bias is the failure to take into account the educational needs of minority students referred for consideration of special education classification and placement. To ignore these needs through simple devices which prevent minority students from being classified does not constitute a solution to the problems which led to the original referral. In recent years we have seen several examples of these alternative classification procedures (Mercer, 1979; Talley, 1979; Fisher, 1978; and Scott, 1979). These

studies suggest that certain kinds of social competence measures, if applied rigorously to classification and placement decisions, have the effect of declassifying students. Declassification means the student is no longer deemed eligible for designation as handicapped, most often in mild mental retardation. The courts in a number of cases have also emphasized the use of nontraditional measures such as measures of social competence as a means to reduce or eliminate overrepresentation of minorities in special education programs.

Table I

Summary of Concepts and Empirical Studies of Bias in Tests[1]

Definition of Bias	Empirical Studies	Results Confirmed/Equivocal/Not Supported
1. MEAN DIFFERENCES	Large number of studies.	Economically disadvantaged, minority students obtain lower average scores. The size of the differences vary by group and/or for some groups, by type of measure.
2. ITEM BIAS	Several recent studies using individual tests. Many studies with group tests.	Subjective judgments usually identify many items as biased. However, subjective judgments are unreliable. Empirical studies generally do not support the existence of item bias on conventional tests.
3. PSYCHOMETRIC	Several recent studies.	Psychometric characteristics such as reliability, item x total, subtest x scale, etc., are the same regardless of group.
4. FACTOR ANALYSIS	Several recent studies.	The factor structure on tests such as the WISC-R is largely the same regardless of group.
5. ATMOSPHERE BIAS	Many studies.	Inconsistent results, often contradictory. The size of the effects; if real, is small.
6. PREDICTIVE VALIDITY TESTS OF ACHIEVEMENT	Many studies.	The relationship between ability and achievement tests is virtually the same regardless of group. Issue of "autocorrelation" is unresolved.
7. PREDICTIVE VALIDITY TEACHER RATINGS/GRADES	Few studies.	*Some inconsistent results; If criterion is clearly academic, not social, there is no differential validity.*
8. SOCIAL CONSEQUENCES Misuse, misinterpretation, overinterpretation	Few published studies, considerable anecdotal and historical evidence.	Conventional tests are frequently overinterpreted and/or misinterpreted. Test results have been used to justify restrictive and sometimes racist social policies.
9. SELECTION RATIOS	Many "indirect" studies.	Economically disadvantaged, minority students are overrepresented in special education programs for the mildly retarded. Tests are used as part of that process. Whether test use increases OR decreases the overrepresentation is unclear.

[1]Table based on review by Reschly, *1981*.

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As noted previously (Reschly, 1979) declassification does not solve any problems. Moreover, a panel of widely recognized experts recently reached the same conclusion by focusing on the question of Why is disproportion a problem? (Heller, Holtzman & Messick, 1982). The answer to that question, often missed by critics of conventional assessment procedures, has to do with the number of underlying assumptions about the nature of special education programs. The critical issue, though, is the degree to which the newer assessment procedures, many of which were used in this investigation, are related to special education decision making and educational programming.

Social Competence

Social competence has long been regarded as a fundamental aspect of human capabilities. In a very early formulation, Thorndike (1927) suggested three kinds of intelligence, one of which was social competence. Social competence has also been a fundamental notion associated with conception of, definition, and classification criteria with handicapped persons. This is particularly apparent in the modern classification criteria in the area of mental retardation which have consistently, through several revisions, emphasized the importance of both cognitive and social competence. (It might be noted that the most widely used classification system in mental retardation, that produced by the American Association on Mental Deficiency, Grossman (1983), uses the terms intelligence and adaptive behavior.)

Social competence, like cognitive competence or intelligence, is not easily defined nor easily assessed. Social competence in general has to do with the degree to which the individual can perform various social roles associated with or expected of persons in particular settings and at various ages. A socially competent individual is one who can exhibit age-appropriate behaviors in specific settings. The nature of these behaviors and the process whereby expectations are established was discussed well by Greenspan (1979). Greenspan's notion of personal competence, the two major subcomponents being social and cognitive competence, was influential on the approach selected for this investigation. In the area of social competence, we decided to organize our work around two major subcomponents, social skills and adaptive behavior. We believe these components comprise the most important aspects of the construct of social competence. This division also is consistent with the way much of recent research and theory has been organized.

Adaptive behavior. The concept of what now is called adaptive behavior has been fundamental to mental retardation and other handicapping

areas for many, many years. Adaptive behavior as a term was first used, apparently, in the 1961 revision of the American Association on Mental Deficiency (AAMD) Manual on Terminology and Classification. Social maturity or social competence had been used previously to refer to what is now called adaptive behavior (Doll, 1941, 1953). Adaptive behavior has continued to be a fundamental notion in all of the recent revisions of the AAMD classification scheme. The most recent revision, (Grossman, 1983) continues to define adaptive behavior as, "effectiveness or degree to which individuals meet the standards of personal independence and social responsibility expected for age and cultural group " (Page 1, Grossman, 1983). As noted by Coulter and Morrow (1978) there has been considerable confusion over the exact meaning of the concept of adaptive behavior. Currently available measures of adaptive behavior also reflect considerable variation. The two most basic notions of adaptive behavior, that is, expectations vary according to age and to cultural setting, are represented in virtually all of the measures of adaptive behavior. However, measures of adaptive behavior do vary on a number of dimensions including the following: 1) the amount of emphasis placed on cognitive competence; 2) the underlying purpose for the adaptive behavior measure, program planning/intervention, or classification/placement; 3) the social setting which is most important, in school versus out of school; 4) the method of measurement used, direct administration to the child versus interview of third party respondent; and 5) the preferred respondent, e.g., teacher versus parent. In view of these rather large variations it is not surprising that there is both considerable confusion regarding adaptive behavior as well as a good possibility that the results of different adaptive behavior scales will not agree.

There appear to be two major reasons for the increasing interest in the area of adaptive behavior. First, there is the concern about bias in assessment, particularly overrepresentation of minority students in special class programs for the mildly retarded. Adaptive behavior assessment has been seen as a method whereby this overrepresentation could be diminished and, depending on scale, perhaps eliminated. Recent research suggests that adaptive behavior may or may not have a substantial relationship with measured intelligence depending on the adaptive behavior scale involved. Part of the purpose of this investigation was to determine the convergent and discriminant validity among measures of cognitive and social competence, including adaptive behavior and intelligence.

A second major purpose for assessing adaptive behavior is to develop instructional programs or psychological interventions to enhance social competencies. This purpose is supported by data suggesting that mildly retarded persons often exhibit adaptive behavior deficits, and that adaptive behavior competencies are often crucial to the degree of self support and independent functioning achieved by mildly retarded adults. (For additional information concerning adaptive behavior, the reader is referred to Coulter & Morrow, 1978; Mercer, 1979; and Reschly 1982, 1985).

Social skills. The other major component of social competence according to the scheme presented here is social skills. Social skills, in contrast to adaptive behavior, refers to those behaviors involved in dealing with other persons. Like adaptive behavior, social skills are age and setting specific. For school-age children, social skills would necessarily involve those behaviors involved in getting along with peers as well as significant adults (e.g., teachers and parents). It is important to remember that social skills for children in school settings include not only those behaviors that lead to peer acceptance, but also behaviors that allow them to successfully cope with the demands of the classroom environment (i.e., task-related social skills such as being on-task, completing work, gaining attention appropriately, etc.). In short, social skills may very well be one of the most crucial areas of development, as suggested by the apparent relationship between social skills during childhood and psychological adjustment in the adult years (Gresham, 1981a, 1981b).

Social skills information is relevant to several crucial decisions concerning classification/placement and program planning/ intervention decisions with handicapped students. First of all, social skills are a fundamental component of most definitions of behavior disorders or emotional disturbance. These definitions usually mention getting along with others, both adults and peers. A second very important use of social skills information is in determining appropriate placement for a youngster who is deemed eligible for special education services. Mainstreaming efforts are probably highly dependent upon the student having certain requisite social skills (Gresham, 1982). The degree and kind of mainstreaming should be based at least in part on the level of social skills. Handicapped youngsters with very poor social skills, even if they are capable of handling the academic demands, are likely to experience failure and peer rejection in a regular classroom. Finally, social skills assessment data should be used in developing interventions designed to improve social skills. These objectives and the associated training programs should be seen as a crucial component of handicapped youngsters' individualized educational programs (Gresham, 1985a).

A variety of procedures have been developed to assess social skills (Gresham, 1985b). Some of these methods are quite old while others are quite recent. Sociometric measures, using some sort of peer rating or peer nomination technique, were developed many decades ago, but have not been used frequently in preplacement evaluations. The sociometric data provides information on the youngsters who have either low social skills or are regarded as less desirable by their peers. Other techniques for assessing

social skills include teacher and parent ratings, as well as structured observation scales. The relationship of different measures of social skills as well as the relationship with other more traditional social and cognitive measures is largely unknown. Furthermore, certain subscales on adaptive behavior inventories, for example, those having to do with peer relations, should be related to the results of more direct measures of social skills, such as peer ratings or nominations (Mercer, 1979). Investigation of the convergent and discriminant validity of various measures of social skills was a major purpose of this project.

Cognitive Competence

Traditional measures of cognitive competence, intelligence and achievement, were also included in this investigation. The purpose in obtaining information on these dimensions was to examine the relationships among social and cognitive measures. The cognitive measures used in this study were, by and large, very widely used assessment devices. An enormous amount of research has been published on these various devices, including studies of special and regular education students and investigations of black and white students. These measures are generally regarded as having very good technical characteristics, particularly reliability, validity, and norms (Salvia & Ysseldyke, 1981). Furthermore, these measures are typically used in preplacement and reevaluation of handicapped students.

To date, there are few studies reporting comparisons of social and cognitive competence. Such studies have not been conducted because many of the social competence measures have been developed quite recently as well as the substantial cost associated with obtaining comprehensive information over social and cognitive competencies from relatively large samples. A major purpose in this study was to obtain such information and to use these data to carry out multitrait-multimethod (MTMM) comparisons. These comparisons involve efforts to determine whether or not instruments claimed to be measures of the same attributes are more highly related than instruments using the same method to measure different attributes (Campbell & Fiske, 1959). In the results section of this study we reported specific MTMM comparisons. At this point, we emphasize that the ideal outcome in most MTMM studies is maximum trait variance, i.e., different methods of measuring the same trait are highly correlated, and minimal method variance, i.e., instruments which use the same method to assess different traits have a very low correlation. In most instances in the behavioral sciences, however, the outcomes are not nearly so clear cut. Typically at least some of the relationship between various measures is found to be method variance.

A related purpose in this study, which also required extensive information on both cognitive and social competencies, was to investigate the convergent and discriminant validity of these measures. The questions in this aspect of the investigation involved determining the degree of agreement and disagreement among various instruments as well as the degree to which instruments distinguish between various student groups, particularly regular versus special education placement. The question of whether or not social competence measures add unique and valid information to traditional measures was a central concern here.

METHODOLOGY

The purpose of this study was to investigate the multitrait-multimethod characteristics and the convergent and discriminant validity attributes of a wide variety of measures of social and cognitive competence. In this section the sampling procedures, instruments and data analyses are described. Since our purpose was to examine the degree to which these instruments could be particularly useful in preplacement and reevaluation of handicapped students, we obtained samples from regular and special education populations. Another purpose was to examine the effects of these instruments on the classification and placement of minority students, a topic that has been increasingly controversial over the last decade. In order to examine questions having to do with bias in assessment and bias in decision making, we obtained samples from populations of white and black students.

Sample

The two major stratification variables in sample selection were type of educational program, regular or special, and race, black or white. In addition to these characteristics, we restricted sample selection to students within the age range of about 7 1/2 to 11 1/2 years. These age limitations were imposed due to the lower and upper limits of the various assessment devices selected for this investigation. Referrals to special education programming and initial placement in special education programs for mildly handicapped students usually occur within this age range. We also attempted to choose approximately equal numbers of males and females, although this was particularly difficult with the special education samples which usually reflect overrepresentation of male students.

The regular education-special education variable was determined according to school records. Students from special education programs were selected only if the special education program was parttime and the student spent the majority of the school day within a regular education classroom. These parttime special education students, usually placed in resource teaching programs, constitute by far the greatest proportion of the special education population. All of the students in the white special education sample were classified as learning disabled. All of them would also be regarded as mildly handicapped. All participants in the black special education sample were also mildly handicapped, but with diverse classifications including slow learner, mildly mentally retarded and learning disabled.

The race variable was determined by school records. Following common procedures, e.g., Mercer (1979), students regarded as being black in school records were included in the population from whom this sample was selected. The regular and special education variable was applied in the same way with the white and black samples. All of the white regular education students were selected from classrooms in central Iowa. The white special education students were selected through cooperative agreements with school psychologists from throughout the State of Iowa. Explicit instructions were provided to school psychologists concerning selection criteria and administration of various instruments. Similar procedures were used in selection of the black sample, all of which came from the Baton Rouge area of Louisiana. Primary responsibilities for carrying out the study with the white sample were assumed by Reschly with considerable assistance from graduate assistants, especially Graham-Clay. Primary responsibility for carrying out the investigation with the black sample was assumed by Gresham, again with considerable assistance from graduate assistants.

Instruments

The central purpose of this study was to investigate interrelationships among various measures of social and cognitive competence. An enormous amount of data were obtained from different methods of assessment and a wide variety of dimensions of behavior. All instruments were administered according to standardized procedures by appropriately trained personnel. In the case of the special education samples, the results from any instruments which had been administered appropriately within the last twelve months were accepted for the study. The acceptance of recent data occurred only with the special education samples, and then only with the standardized measures of intelligence and achievement. All of the data for the regular education sample and nearly all of the data for the special education sample were collected by personnel hired and trained by the project investigators.

Cognitive competence. The following measures of cognitive competence were applied in this investigation. The Wechsler Intelligence Scale for Children - Revised (WISC-R), was used as the measure of academic aptitude. The Peabody Individual Achievement Test (PIAT) was used as a standardized measure of academic achievement. A brief five item rating scale was also used as a measure of achievement. This rating scale was completed by teachers. The items in this rating scale had been used successfully in a previous study (Reschly, Grimes, & Ross-Reynolds, 1981). The five items and the associated rating scale are provided in Table 2.

Table 2

TEACHER RATING OF CLASSROOM PERFORMANCE

Please respond as accurately as possible to all of the items below.

Please rate the child's academic performance in the classroom on the following items. Use the scale provided where 5 indicates very high performance and 1 indicates very low performance.

1. Compared to other children in my classroom I would estimate the academic performance of this child as being in the:

Lowest 10%	Lower 30%, but not lowest 10%	Middle 40%	Upper 30%, but not highest 10%	Highest 10%
1	2	3	4	5

2. In the area of reading, this child is in what range in comparison to other children in your classroom?

Lowest 10%	Lower 30%, but not lowest 10%	Middle 40%	Upper 30%, but not highest 10%	Highest 10%
1	2	3	4	5

3. In the area of mathematics, this child is in what range in comparison to other children in your classroom?

Lowest 10%	Lower 30%, but not lowest 10%	Middle 40%	Upper 30%, but not highest 10%	Highest 10%
1	2	3	4	5

4. In terms of grade level expectations, this child's skills in reading are:

Well below grade level	Slightly below grade level	At grade level	Slightly above grade level	Well above grade level
1	2	3	4	5

5. In terms of grade level expectations, this child's skills in mathematics are:

Well below grade level	Slightly below grade level	At grade level	Slightly above grade level	Well above grade level
1	2	3	4	5

Social competence: Adaptive behavior. Two recently developed measures of adaptive behavior were used in this study. The Children's Adaptive Behavior Scale (CABS) (Richmond & Kicklighter, 1980) was used because it was designed for use in preplacement and reevaluation of mildly handicapped students and it reflects a unique approach to measuring adaptive behavior, i.e., direct administration of items to the child. The second measure of adaptive behavior used in the study was the Adaptive Behavior Inventory for Children (ABIC)(Mercer, 1979). This instrument was also designed for use with the mildly handicapped in preplacement and reevaluation decisions. This instrument uses the more common method of assessing adaptive behavior through interview with a third party who is familiar with the child's behavior. ABIC interviews are to be conducted with the "primary care taker" which nearly always was the child's mother.

Social competence: Social skills. Three different indices of social skills were obtained for each child. Two versions of the Social Behavior Assessment (SBA) (Stephans, 1978) were used. The standardized version which involves a 134 item behavior checklist was completed by the child's regular classroom teacher, according to the standardized procedures. A second version of the SBA, developed recently by Pamela Crouch at Iowa State University, was completed by the parent at the same time that the ABIC was administered. The parent version of the SBA involved modification of each of the items so that the behaviors could be or were likely to be observed by parents in the home setting. This revision of the SBA has the same four domains, but 29 rather than 30 subdomains, and 128 rather than 134 items. The deleted subdomain (On Task Behavior) has six items reflecting behavior unique to the academic setting. The third type of social skills measure involved the use of peer ratings. Two peer rating scales which reflected the degree to which classroom peers liked to "play with" and "work with" the subjects were collected as an index of overall peer acceptance. Previous work with these measures has shown adequate reliability and validity (Gresham, 1981c; Gresham & Nagle, 1980). In addition to these two peer ratings, a structural peer assessment measure was collected in order to identify specific behavioral correlates of peer acceptance. The home version of the SBA and the sociometric instruments are presented in Appendices A and B.

RESULTS AND DISCUSSION

In this section the results of various analyses will be presented. Presentation of these results will proceed from descriptive information concerning the sample, descriptive statistics and t-tests on the various measures of academic and social competence, discriminant function analyses using various measures of academic and social competence, and multitrait-multimethod (MTMM) analyses of the measures of academic and social competence. Generally, comparisons were restricted to regular versus special education students within each of the samples. We did not make comparisons, nor present data, on white versus black students since the samples of each were obtained from quite different geographic regions. Any comparisons of white and black samples using these data must take into account the possibility that any observed differences are due to regional variations rather than race.

Demographic Characteristics of the Samples

As noted earlier all of the data on white students, both regular and special education samples, were obtained in the State of Iowa. The white regular education sample was selected randomly from two school districts in central Iowa. Both of these school districts were quite rural in character, although the parents of some students commuted to a nearby city. We would regard the regular education white sample as being largely rural, and perhaps, to some degree, suburban in character. The white special education sample was obtained throughout the State of Iowa. This sample appears to be typical of students placed in programs for the mildly handicapped in the State of Iowa.

The salient characteristics of the Iowa population are that it is largely rural in character with agriculture or agriculturally related industries predominating in the economy. Most of the persons would be expected therefore to reside in small towns or medium size cities with very few residing in what would be regarded elsewhere as large urban areas. Another characteristic of the Iowa population is that it is largely middle class with a relatively low incidence of extreme poverty. These characteristics are further substantiated by the socio-culture data presented in Table 4.

The black sample, both regular and special education, was obtained in school districts in and around Baton Rouge, Louisiana. This sample was largely urban in character and quite obviously restricted to the southern region of the United States. The regular education and special education students in the black sample were all drawn from the same school districts

and would therefore be expected to represent approximately the same student population. Various demographic characteristics of the sample are presented in tables below.

The age mean for all four samples was very similar, varying only from about 109.9 to 111.9 months. Both of the special education samples were considerably more variable on the age characteristic. All of the samples were relatively evenly distributed among males and females except for the black special education sample which had a preponderance of males (see Table 3).

Table 3

Age and Sex Characteristics

Variable/Sample		White regular	White special	Black regular	Black special
Age in Months	Mean	111.96	109.89	110.61	111.35
	s.d.	11.65	17.88	8.10	15.78
	Range	91-137	76-143	90-131	75-138
Sex	M	52	50	48	96
	F	48	50	60	43

The sociocultural characteristics of the samples, as indicated by the Sociocultural Measures of the System of Multicultural Pluralistic Assessment (SOMPA) (Mercer, 1979), are provided in Table 4. As can be seen from the means, standard deviations, and t-tests for the four samples, the regular education samples generally had higher sociocultural attributes. This trend was particularly noticeable on the Socioeconomic Status Modality and the Urban Acculturation Modality. The factors which probably were most important in reflecting differences among the samples were the Occupation and Source of Income Factors, especially for black students, and the Anglicization Factor for both samples. The occupation and source of income data represent fairly standard measures of socioeconomic status. The Anglicization Factor represents, among other things, the amount of formal education completed by the parents of the child. The regular and special education samples used in this investigation did, quite clearly, vary on the traditional and most frequently used measures of SES, i.e., the parents' occupational status and formal education.

Table 4

Sociocultural Characteristics

of the Samples According to

SOMPA Sociocultural Measures (SCM)

		White			Black		
Variable	Sample	Mean	s.d.	t/p	Mean	s.d.	t/p
SCM Factors							
Family Size	Regular	5.83	1.75	-1.22/___	7.23	3.12	-3.15/.01
	Special	6.19	2.40		9.15	4.60	
Parent-Child	Regular	5.62	1.13	.76/___	5.15	1.73	1.17/___
	Special	5.48	1.36		4.81	1.93	
Marital Status	Regular	10.44	3.41	2.50/.01	5.64	5.45	1.78/___
	Special	8.96	4.81		4.10	5.21	
Occupation	Regular	4.67	2.28	4.05/.0001	2.64	2.32	3.41/.001
	Special	3.32	2.41		1.50	1.62	
Source of Income	Regular	2.87	.44	3.92/.0001	2.05	1.28	1.80/___
	Special	2.40	1.10		1.67	1.33	
Sense of Efficacy	Regular	5.64	.91	4.24/.0001	3.91	2.24	3.19/.01
	Special	4.79	1.78		2.76	2.21	
Community Participation	Regular	9.19	3.15	3.47/.001	8.72	3.64	2.68/.01
	Special	7.59	3.33		7.15	3.60	
Anglicization	Regular	52.98	7.49	5.48/.0001	31.31	9.77	3.51/.001
	Special	46.67	8.72		25.73	10.02	
Urbanization	Regular	2.35	1.22	- .50/___	3.92	1.68	1.22/___
	Special	2.44	1.43		3.51	2.54	
SCM Modalities							
Family Size	Regular	5.83	1.75	-1.22/___	7.23	3.12	-3.22/.01
	Special	6.19	.40		9.17	4.54	
Family Structure	Regular	16.08	3.77	2.64/.01	10.84	5.99	2.00/.05
	Special	14.38	5.17		8.94	5.86	
SES	Regular	7.54	2.40	4.53/.0001	4.69	3.38	2.69/.01
	Special	5.72	3.20		3.31	2.83	
Urban Acculturation	Regular	70.08	9.17	5.98/.0001	47.30	12.71	3.96/.0001
	Special	61.19	11.65		38.78	14.42	

Although data are not presented here, our results were compared with a previous study of a randomly selected sample of students from the entire State of Iowa in which the SOMPA Sociocultural Measures were used (Reschly,

Grimes, & Ross-Reynolds, 1981). The white sample from this study as well as the previous study just cited were quite similar to the California SOMPA standardization sample (Mercer, 1979) except for the Urbanization Factor. Not surprisingly, the Iowa population is significantly more rural than the SOMPA standardization sample, which was drawn entirely from student populations in the State of California. Similar kinds of comparisons were carried out with the means and standard deviations for black students in this sample, and the Iowa sample of blacks from Reschly et al. (1981) and the California SOMPA standardization sample. The black regular education sample randomly selected for this study (from Louisiana) was generally comparable to the California standardization sample except for the factor scores on Occupation, Source of Income, and Anglicization. The Occupation and Source of Income factors comprise the Socioeconomic Status Modality of the SOMPA Sociocultural Measures, and the Anglicization Factor is probably the most important component of the Urban Acculturation Modality. These findings concerning sociocultural characteristics of the Louisiana sample suggest that <u>both</u> the regular and special education samples have lower socioeconomic status than other samples of black students of similar age selected randomly in California and Iowa. Furthermore, the socioeconomic status of the black special education students is particularly low, when compared either to black regular education students in Louisiana or to the two other samples of black students.

The general conclusions we would draw from these findings are that our samples of white students are quite similar to populations of white students in Iowa and California studied previously. The degree to which California and Iowa students are typical of the United States population of white students is arguable and largely unknown. Iowa students probably perform significantly above the national average on a variety of indices of academic aptitude and school achievement (Reschly et al., 1981). However, the Iowa population is similar to the national population since most Iowa social and economic indices are near the medians for the entire United States.

We urge caution in applying specific characteristics of any of these samples to other samples selected differently or located in other places. We do not believe our means would necessarily apply to other student groups. However, we believe the <u>general relationships</u> among regular and special education students within each of the racial groups are probably typical of the kind of relationships likely to be found with other samples of regular and special education students. The major purpose of this study was, of course, to investigate the <u>relationships</u> among social and academic competence measures. We believe these samples are quite adequate to explore those relationships.

Descriptive Statistics and t-tests

In this section we present information on measures of social and academic competence. For reasons noted earlier, we do not provide comparisons of white and black students, focusing rather on comparisons between regular and special education students within each of the racial samples.

Academic Competence Indices. Descriptive statistics and t-tests comparing academic competence indices among regular and special education students are presented in Table 5 for the white samples and Table 6 for the black samples.

Table 5

Academic Competence Indices:

Descriptive Statistics and t-tests for

the White Samples

Variable	White Regular Education			White Special Education			
	$\bar{X}$	S.D.	Range	$\bar{X}$	S.D.	Range	t-test[1]
[2]WISC-R							
VIQ	109.06	13.17	77-143	87.64	10.68	61-113	12.63
PIQ	111.35	12.84	84-143	90.13	12.39	55-123	11.29
FSIQ	111.09	13.08	79-143	87.59	10.32	63-109	14.11
[3]PIAT							
Math	103.47	11.71	74-135	88.47	10.85	69-135	9.37
R Rec	109.72	9.04	87-135	90.67	8.79	72-110	15.07
R Comp	111.38	9.51	91-135	91.53	9.06	65-122	14.52
Spell	103.25	9.95	83-135	88.83	9.09	65-117	10.67
G I	105.87	9.95	80-135	92.85	8.77	72-113	9.80
TOTAL	106.56	9.12	84-134	87.14	8.11	69-109	15.79
[4]TRS							
Acad (1)	3.48	1.03	1-5	1.43	.67	1-4	16.62
Read (2)	3.51	1.13	1-5	1.49	.68	1-4	15.27
Math (3)	3.42	1.07	1-5	1.69	.89	1-5	12.38
Read (4)	3.50	1.19	1-5	1.46	.56	1-3	15.46
Math (5)	3.36	.89	1-5	1.77	.78	1-4	13.36
TOTAL(6)	17.23	4.81	6-25	7.84	2.76	5-19	16.90

1. All t-tests were statistically significant at the .0001 level or beyond.

2. Wechsler Intelligence Scale for Children - Revised (WISC-R) Verbal IQ (VIQ), Performance IQ (PIQ) and Full Scale IQ (FS IQ).

3. Peabody Individual Achievement Test (PIAT), Mathematics (Math), Reading Recognition (R REC), Reading Comprehension (R Comp), Spelling (Spell), General Information (G I) and Total.

4. Teacher Rating Scales (TRS) Item 1 Academics re peers, Item 2 Reading re peers, Item 3 Math re peers, Item 4 Reading re graded level, Item 5 Math re grade level, and Item 6 Total.

It is apparent that white mildly handicapped special education students are substantially below white regular education students on all of the measures of academic competence. All t-tests were statistically significant at the .0001 level or beyond. A further indication of the magnitude of these differences is provided by comparing the difference between the means divided by the standard deviations. This somewhat informal index, useful in estimating the practical significance of differences, indicates rather large differences which were always at least one full standard deviation and some were as much as two full standard deviations. For example, on item one of the Teacher Rating Scale which requires a comparison of the youngster to the overall academic performance of other students in the class, the mean of 3.48 for regular education students was a full two standard deviations above the mean of 1.43 for special education students. Clearly, a difference of this magnitude demonstrates beyond all doubt that mildly handicapped students, even those placed parttime in special education programs, are functioning far below their peers in the regular classroom. Similar results were obtained for all of the other measures, indicating beyond any doubt, that parttime special education students are substantially lower on measures of academic aptitude and achievement.

The level of performance reflected in the mean scores on the standardized tests, the WISC-R and the PIAT, suggest that Iowa regular education students are performing significantly above the national population averages. This result is consistent with our previous research on randomly selected samples of Iowa students (Reschly, et. al., 1981). The white special education students performed significantly below national population averages, and still farther below the average scores obtained by white students in Iowa. These data would suggest that the typical parttime special education student in Iowa, most often classified as learning disabled, performs substantially below the typical class average. Although most definitions and classification criteria in learning disabilities suggest average or above average performance on intelligence or academic aptitude, these students clearly were below average. Furthermore, in comparison to the Iowa population means, these students were substantially below average on intelligence, by 1 1/2 to almost 2 standard deviations below the mean.

Other recent research in the area of learning disabilities and on the mildly handicapped generally suggest that many students classified as learning disabled would perhaps be more accurately characterized as being slow learners since they performed substantially below average on both measures of aptitude and achievement. Moreover, the mean or median IQ of students classified as learning disabled throughout the United States has been estimated to be 90 or below. Finally, other recent studies (Shepard, 1983) indicate that a fair number of slow learning students are classified

as learning disabled and are placed in parttime special education programs. The results reported here for samples of white students would be consistent with the conclusions of those of other studies.

Academic competencies data for black students are provided in Table 6.

Table 6

Academic Competence Indices:

Descriptive Statistics and t-tests for

the Black Samples

Variable	Black Regular Education			Black Special Education			
	$\bar{X}$	S.D.	Range	$\bar{X}$	S.D.	Range	t-test[1]
[2]WISC-R				WISC-R			
VIQ	90.57	12.95	62-115	77.10	9.18	58-101	7.59
PIQ	93.81	12.33	67-115	78.89	11.93	52-106	7.85
FSIQ	91.19	11.95	63-115	76.18	9.94	55-103	8.66
[3]PIAT				Woodcock-Johnson			
Math	94.70	10.38	69-116	M. 78.18	10.33	65-116	10.34
R Rec	96.92	13.22	65-116	R. 75.45	10.52	65-113	11.21
R Comp	95.06	13.09	65-120				14.52
Spell	97.78	12.81	69-117				10.67
G I	91.01	11.88	65-116				9.80
TOTAL	92.81	11.81	69-111				15.79
[5]TRS				TRS			
Acad (1)	3.08	1.17	1-5	1.97	.86	1-4	7.11
Read (2)	3.13	1.15	1-5	1.81	.78	1-4	8.90
Math (3)	3.02	1.03	1-5	2.19	.93	1-5	5.39
Read (4)	2.86	1.03	1-5	1.67	.72	1-4	8.86
Math (5)	2.76	.87	1-5	2.09	.73	1-4	5.30
TOTAL(6)	14.83	4.85	5-25	9.71	3.15	5-18	8.33

1. All t-tests were statistically significant at the .0001 level or beyond.

2. Wechsler Intelligence Scale for Children - Revised (WISC-R) Verbal IQ (VIQ), Performance IQ (PIQ) and Full Scale IQ (FS IQ).

3. Peabody Individual Achievement Test (PIAT), Mathematics (Math), Reading Recognition (R REC), Reading Comprehension (R Comp), Spelling (Spell), General Information (G I) and Total.

4. The Woodcock-Johnson Mathematics and Reading Cluster Scores were used for the Black Special Education sample.

5. Teacher Rating Scales (TRS) Item 1 Academics re peers, Item 2 Reading re peers, Item 3 Math re peers, Item 4 Reading re graded level, Item 5 Math re grade level, and Item 6 Total.

As can be seen in Table 6 black regular education students also performed at a higher level on all indices of academic competence. The mean scores on the standardized tests for black regular education students indicated they were performing at about 2/3 of a standard deviation below the national population mean. The pattern reported here is similar to results reported by Kaufman and Doppelt (1976) for the WISC-R standardization sample. That study also reported a mean WISC-R IQ score for southern black children of 83.4, slightly more than one standard deviation below the national population mean. Thus, the results reported here are in the same direction, but the differences are not as large. The size of the differences between regular and special education students on various academic indices was generally in the range of 1 to 1 1/2 standard deviations. This is, again, a substantial difference parallel to, but not as strong as the differences reported for white regular and special education students. Although black special education students did not perform as far below the levels obtained by their regular education cohorts, all of the differences were statistically significant and, in our view, practically significant as well. Differences of this magnitude, i.e., 1 to 1 1/2 standard deviations, are large differences in average performance which also imply relatively little overlap of the distributions of scores for these groups.

Comparison of these results to results from other studies involving black mildly handicapped students is nearly impossible because little if any previous research on this population has been published. We do note the similarity of black regular education students to other results using the same measures with black regular education students, e.g., Mercer (1979). Although black special education students were not as far below regular education students as white special education students were below white regular education students, the degree of difference is still substantial and the difference is even more dramatic if the performance of black special education students is compared to population averages. Generally, black special education students were performing about 1 1/2 to 2 standard deviations below national population means. Discrepancies of this magnitude are suggestive of substantial difficulty in an academic setting.

Social Competence Indices. Information from a wide variety of social competence indices for the samples of white students is presented in Table 7. As can be seen in the last column on that table, all differences in means between regular and special education students were statistically significant, $p < .0001$ for all but one comparison. It should be noted that higher scores on the SBA indicate lower social skills. These results suggest quite clearly that mildly handicapped students do indeed exhibit poorer social competence on a wide variety of indices. In this study at least four sources of social competence informaton were used for each

Table 7

Social Competence Indices:

Descriptive Statistics and t-tests for

the White Samples

Variable	White Regular Education			White Special Education			t/p
	$\bar{X}$	s.d.	Range	$\bar{X}$	s.d.	Range	
[1] Sociometrics							
Work with	+0.13	0.94	-2.22 to +1.79	-0.94	0.93	-2.70 to +1.70	7.76/.0001
Play with	+0.14	0.99	-2.30 to +2.30	-0.73	1.00	-2.71 to +1.79	5.95/.0001
SPA	+0.12	0.96	-2.55 to +2.07	-0.87	0.88	-2.71 to +1.00	6.91/.0001
[2] SBA-Parent							
Envir	16.46	2.02	12 to 23	17.87	3.24	12 to 27	-3.66/.001
InPer	65.92	7.01	55 to 88	76.52	14.22	55 to 116	-6.63/.0001
Self	26.74	3.51	23 to 40	31.37	5.59	23 to 48	-6.96/.0001
Task	41.49	4.18	37 to 55	51.24	9.74	37 to 77	-9.13/.0001
Total	150.63	14.55	130 to 206	177.00	30.42	131 to 258	-7.76/.0001
[2] SBA-Teacher							
Envir	16.01	1.63	15 to 22	17.74	3.63	12 to 31	-4.29/.0001
InPer	62.19	8.76	55 to 102	73.72	14.56	55 to 123	-6.71/.0001
Self	24.78	2.72	23 to 35	29.60	5.99	22 to 52	-7.23/.0001
Task	49.02	6.71	43 to 76	62.53	13.05	43 to 107	-9.10/.0001
Total	151.98	17.53	136 to 228	183.69	33.21	136 to 308	-8.41/.0001
[3] ABIC							
Fam	47.58	13.57	10 to 80	39.23	15.41	10 to 71	4.05/.0001
Comm	48.84	15.23	11 to 89	38.51	13.28	10 to 64	5.10/.0001
Peer-R	53.47	12.89	12 to 78	41.91	16.07	10 to 71	5.59/.0001
NonAcad	48.68	12.72	10 to 74	38.73	13.30	10 to 62	5.39/.0001
E/C	50.93	13.90	10 to 82	42.65	14.77	10 to 73	4.07/.0001
Self-M	52.33	12.29	23 to 80	40.73	15.87	10 to 72	5.76/.0001
Average	50.39	11.48	2[illegible] to 75	40.36	13.00	12 to 63	5.77/.0001
[4] CABS							
Lang	39.02	1.26	34 to 40	35.95	4.83	18 to 40	6.13/.0001
Indep	37.66	1.86	30 to 40	32.51	5.47	11 to 40	8.71/.0001
Fam	36.70	1.89	30 to 40	32.51	5.47	10 to 40	7.20/.0001
E/V	35.36	2.60	27 to 40	30.02	6.64	5 to 40	7.46/.0001
Soc	36.92	2.33	26 to 40	33.46	5.50	13 to 40	5.76/.0001
Total	185.66	6.74	161 to 196	163.47	26.53	60 to 198	8.07/.0001

1. Sociometrics Structured Peer Assessment = SPA.
2. Social Behavior Assessment (SBA); Environment (Envir); Interpersonal (Inper).
3. Adaptive Behavior Inventory for Children (ABIC); Family (Fam); Community (Comm); Non-Academic School (Non-Acad); Peer Relations (Peer-R); Earner/Consumer (E/C); and Self-Maintenance (Self-M).
4. Children's adaptive Behavior Scale (CABS); Language Development (Lang); Independent Functioning (Indep); Family (Fam); Economic/Vocational (E/V); Socialization (Soc).

student: peers, parents, teachers, and the child him or her self. The lower social competence of mildly handicapped students appears to be a fairly pervasive attribute, present in several settings and consistent across several observers or judges. Clearly, the problems of mildly handicapped students are not restricted to academic competence, but also include social competence. These findings are wholly consistent with the social competence characteristics of mainstreamed mildly handicapped children reported and discussed in major reviews on this issue (see Gresham, 1981a, 1983, 1985c). This particular result has important implications for the use of social competence information as part of the preplacement, reevaluation, and IEP development with mildly handicapped students.

The differences on the various social competence indices for the white samples were generally in the range of 1/2 to 1 standard deviation. Differences of this magnitude quite easily and consistently meet the criterion of statistical significance. However, the practical significance of some of these differences is subject to speculation. There was at least one instance of a difference, although statistically significant, but not practically significant. This occurred with the Environmental subscale on the SBA Parent and on the SBA Teacher. The differences among white regular and special education students on the Environmental subscale were too small to support any inference of practical import.

The differences on the academic competence measures for the white samples were generally larger, usually ranging from 1 to as much as 2 standard deviations. Based only on inspection of the size of the differences, it would appear likely that the academic competence measures are better discriminators of group membership, i.e., placement in program for handicapped versus regular education. Subsequent analyses will be presented later which do indeed suggest that this is the case.

Some difficulties with the instruments used here are also apparent from inspection of the data in Tables 7 & 8. The Children's Adaptive Behavior Scale (CABS) does not have sufficient ceiling to be used with students of the ages included in this study. The students in this study were within the age limits for which the CABS is recommended by the authors. However, for older students, particularly students of age 10 or 11, the CABS does not have sufficient ceiling to provide a good measure of adaptive behavior. These ceiling problems were not quite as apparent with the special education sample. Furthermore, the Environmental subscale on the SBA, both versions, did not appear to be a particularly good discriminator for white regular and special education students.

Table 8

Social Competence Indices:

Descriptive Statistics and t-tests for

the Black Samples

Variable	Black Regular Education			Black Special Education			t/p
	$\bar{X}$	s.d.	Range	$\bar{X}$	s.d.	Range	
[1] Sociometrics							
Work with	-0.03	1.02	-2.45 to +1.82	-0.42	0.54	-1.69 to +0.71	3.13/.01
Play with	-0.02	0.97	-2.19 to +1.75	-0.42	0.47	-1.51 to +0.50	2.65/.01
SPA	0.00	0.95	-2.23 to +2.00	-0.40	0.73	-2.57 to +0.98	2.83/.01
[2] SBA-Parent							
Envir	16.83	1.98	15 to 24	17.67	3.49	12 to 26	-1.40/NS
InPer	69.23	10.16	55 to 97	72.85	11.94	57 to 104	-1.58/NS
Self	26.98	3.43	23 to 39	30.40	5.48	21 to 44	-3.52/.001
Task	44.63	5.79	37 to 59	48.20	7.30	37 to 60	-2.59/.05
Total	158.40	18.70	131 to 218	168.84	22.47	133 to 215	-2.40/.05
[2] SBA-Teacher							
Envir	17.77	4.38	15 to 41	19.98	6.48	12 to 34	-2.43/.05
InPer	68.79	13.88	55 to 121	79.86	20.65	51 to 128	-3.81/.001
Self	27.61	6.86	22 to 56	31.39	7.19	22 to 45	-3.39/.001
Task	55.42	14.90	40 to 102	63.94	16.46	43 to 97	-3.39/.001
Total	169.58	36.90	136 to 306	195.56	48.57	136 to 281	-3.67/.001
[3] ABIC							
Fam	46.03	10.68	23 to 85	24.55	18.19	10 to 67	6.88/.0001
Comm	36.51	12.37	10 to 86	25.64	15.91	10 to 55	3.72/.0001
Peer	51.51	9.87	27 to 79	29.14	18.15	10 to 62	7.28/.0001
NonAcad	46.08	12.40	13 to 84	27.00	17.70	10 to 70	6.04/.0001
E/C	46.11	10.85	21 to 76	28.43	16.98	10 to 58	5.96/.0001
Self	48.77	11.28	19 to 88	26.62	17.76	10 to 57	7.15/.0001
Average	45.89	10.04	19 to 81	26.98	16.72	10 to 61	6.56/.0001
[4] CABS							
Lang	37.09	1.66	32 to 40	34.51	4.47	22 to 40	4.31/.0001
Indep	34.22	4.30	20 to 40	31.70	4.66	17 to 40	3.17/.01
Fam	34.03	2.89	27 to 39	32.45	3.80	20 to 39	3.46/.001
E/V	33.63	3.65	23 to 39	31.35	3.76	20 to 39	3.46/.001
Soc	35.70	2.81	29 to 40	33.01	3.58	21 to 38	4.70/.0001
Total	174.20	11.91	138 to 190	162.06	17.79	114 to 191	4.51/.0001

1. Sociometrics Structured Peer Assessment = SPA.
2. Social Behavior Assessment (SBA); Environment (Envir); Interpersonal (Inper).
3. Adaptive Behavior Inventory for Children (ABIC); Family (Fam); Community (Comm); Non-Academic School (Non-Acad); Peer Relations (Peer-R); Earner/Consumer (E/C); and Self-Maintenance (Self-M).
4. Children's Adaptive Behavior Scale (CABS); Language Development (Lang); Independent Functioning (Indep); Family (Fam); Economic/Vocational (E/V); Socialization (Soc).

Descriptive statistics and t-tests for the various social competence indices for the black samples are presented in Table 8. Again, a clear general trend toward lower social competence among special education students is apparent. However, in contrast to the results reported for white students, the size of the differences on the various social competence measures for black students were not as large, nor were all of them statistically significant. The two comparisons which were not statistically significant, the Environmental and Interpersonal subscales of the Parent form of the SBA, suggest that, at least in view of parents, black special education students do not have poorer social skills in these domains.

The general pattern was for the means to differ by about 1/2 standard deviation on the various indices of social competence. The one clear exception to this general pattern occurred with the various ABIC Subscales and Average scores. Here the differences between black regular and special education students were more in the range of 1 to 1 1/2 standard deviations. These rather large differences on the ABIC are inconsistent with previous literature suggesting that black special education students usually obtain higher ABIC scores, often within or approaching the normal range (Reschly, 1981). For this sample, the average ABIC score of about 27 was fairly close to the level, usually a score of about 20, that Mercer suggests as the criterion for failing on the adaptive behavior domain. The very low scores on the ABIC for the black special education students are further puzzling because the other measure of social competence obtained through interviewing parents, the Parent form of the SBA, yielded relatively small differences among regular and special education students. It would appear from these data that the ABIC may be a rather accurate predictor of educational placement for black students.

Summary. Perhaps the clearest result in this entire section is that regular education students obtained significantly more positive scores than special education students on a variety of academic and social competence indices. This general conclusion is clear cut and consistent across a wide variety of social and academic competence measures. The differences, though, varied depending on general domain of behavior. Special education students generally scored lower on the academic competence measures. This trend was apparent with both white and black students but perhaps stronger with the latter group.

Discriminant Function Analyses

Discriminant function analyses were examined to determine the accuracy with which the different classes of measures correctly classified regular and special education students. A measure with good discriminant properties would correctly classify regular education students as such and would make few errors such as classifying a special education student as a regular education student or vice versa. The discriminant function analyses were conducted separately for the white and black samples and for the academic and social competence measures.

Academic Competence Measures. The Discriminant Function Analyses based on the academic competence measures indicated a very high rate of correct classification for various combinations. As can be seen from inspecting Table 9, the discriminant function analyses indicated that the academic competence measures were somewhat more accurate for white than for black students, as well as somewhat more accurate for special than for regular education students. For special education white students, the teacher rating scale as well as various combinations of other academic competence measures correctly classified these students at the rate of 95% or above. Use of academic competence measures in the discriminant function analyses for regular education students led to correct classification in the range of about 85% to 90%.

The same general trends were apparent with the black sample, but the rates of correct classification were about 5% to 10% lower. Again, special education students were more likely to be correctly classified than regular education students. Correct classification of special education students using various combinations of academic competence measures were generally in the range of about 85% to 90%. For regular education students, the rate of correct classification was in the range of about 70% to 80%.

The academic competence measures applied in this study quite clearly had considerable accuracy in classifying students who were placed by their schools in regular or special education settings. Since the academic competence measures are typically part of the classification criteria for these placement decisions, it is not surprising that these relatively high rates of correct classification were found. These findings are certainly not new, nor surprising. They do, however, lend some further support to the notion that these samples were typical of regular and special education students. However, the discriminant function analyses that are reported in the next section were of primary interest in this investigation.

Table 9

Discriminant Function Analyses Using

Academic Competence Measures

White Sample

Measures	Correctly Classified		Incorrectly Classified	
	Regular Educ.	Special Educ.	Regular Educ.	Special Educ.
WISC-R VIQ & PIQ PIAT 5 Subtests TRS 5 Items	89%	96%	11%	4%
WISC-R FS IQ	80%	88%	20%	12%
PIAT-Total	85%	88%	15%	12%
TRS-Total	84%	95%	16%	5%
WISC-R FS-IQ PIAT-Total TRS-Total	87%	97%	13%	3%

Black Sample

WISC-R VIQ & PIQ Woodcock-Johnson R & M TRS 5 Items	79%	87%	21%	13%
WISC-R FS IQ	75%	78%	25%	22%
W-J Total	79%	85%	21%	15%
TRS-Total	67%	81%	33%	19%
WISC-R FS IQ W-J-Total TRS-Total	79%	87%	21%	13%

Social Competence Measures. Social competence measures were the primary interest in this investigation. One of the major questions investigated here was the degree to which social competence measures would differentiate among regular and special education students. The results reported in Table 10 indicate that social competence measures do indeed discriminate successfully among special and regular education students. Moreover, the rate of correct classification was considerably higher than what might be expected given the facts that: 1) the social competence measures are not nearly as well standardized nor as technically adequate as the academic competence measures, and 2) the classification criteria for

Table 10

Discriminant Function Analyses with Social Competence Measures

White Sample

Measures	Correctly Classified: Regular Educ.	Correctly Classified: Special Educ.	Incorrectly Classified: Regular Educ.	Incorrectly Classified: Special Educ.
PSBA 4 domains TSBA 4 domains SOC-Play With ABIC 6 domains CABS 5 domains	93%	83%	7%	17%
PSBA Total	82%	59%	18%	41%
SOC-Play With	70%	67%	30%	33%
TSBA Total	82%	67%	18%	33%
ABIC Total	66%	60%	34%	40%
CABS Total	92%	55%	8%	45%

Black Sample

PSBA 4 domains TSBA 4 domains SOC-Play With ABIC 6 domains CABS 5 domains	100%	100%	0%	0%
PSBA Total	66%	58%	34%	42%
SOC-Play With	59%	57%	41%	43%
TSBA Total	70%	49%	30%	51%
ABIC Total	89%	69%	11%	31%
CABS Total	73%	59%	27%	41%

KEY: PSBA = Parent Social Behavior Assessment; TSBA = Teacher Social Behavior Assessment; Soc-Play = Sociometric Play With; ABIC = Adaptive Behavior Inventory for Children; CABS = Childrens Adaptive Behavior Scale.

mildly handicapped students, particularly those classified as learning disabled, slow learner, or mildly retarded, generally do not place very much emphasis on social competence criteria. Thus, there was little if any contamination between the criteria used to place these students and the measures being applied in this investigation.

In the white regular education sample, the best social competence discriminators of educational placement were the combination of all measures together, followed by CABS Total, and then the Social Behavior

Assessment Totals. In the white special education sample, the best discriminator was again the combination of all measures, followed by the Play With Sociometric and the TSBA. The sociometric, PlayWith scale, and the ABIC Total were substantially less successful than the other social competence measures in discriminating among regular and special education white students. It should be noted though, that both of these scales still correctly classified students at a level of 66% or above. In contrast to the trend with the academic competence measures, the social competence measures were more accurate in classifying regular than special education students. The rate of correct classification for regular education students varied from about 66% to 93%, and from a low of 55% to a high of 83% for special education students. For white special education students, three of the measures of social competence had correct classification rates of 60% or less.

The social competence measures for black students varied considerably depending upon whether a combination of all of the measures was used or total scores for single measures. The combination involving all of the domain or subtest scores on the various social competence measures achieved perfect accuracy in classifying black students as regular or special education. This combination, based on an array of 20 scores, resulted in what we regarded as a phenomenal degree of accuracy. However, the total scores for these measures, generally arithmetic averages of the domains involved in the combination of scores cited in the previous sentence, were generally considerably less accurate. For example, the Parent Social Behavior Assessment Total correctly classified 66%and 58%, a hit rate that is considerably less than perfect. In a trend similar to that just reported for white students, the social competence measures were more efficient in correctly classifying regular than special education black students. In most instances, the correct classification rate was better by 10% or more for regular education students. One of the largest differences was observed with the ABIC Total where 89% of the regular education students were correctly classified, but only 69% of the special education black students were correctly classified. However, the ABIC Total was the best single discriminator among black regular and special education students.

The social competence measures clearly were relatively accurate discriminators of educational placement for black students. This was particularly true of the grand combination of all of the measures. However, this grand combination is not likely to be used in the way suggested by these results because of the necessity of keeping in mind a specific cutoff score for 20 measures. Simultaneous consideration of an individual's scores on all 20 measures is well beyond the intellectual capabilities of these investigators and, we suspect, persons serving on multidisciplinary teams. The more realistic application of these measures,

using total or average scores, is not as accurate as the academic competence measures in separating groups of students. However, the social competence measures correctly classified these students at levels significantly above chance.

Multitrait-Multimethod

The next set of analyses used the multitrait-multimethod (MTMM) procedures described by Campbell and Fiske (1959). These procedures involved examining correlational data among different combinations of measures, some of which involve the same traits but different methods of measurement while others involved different traits but the same methods. The general purpose of this analysis is to separate trait from method variance.

Social Competence Measures. Correlation matrices reflecting relationships of ABIC scales to other social competence measures are presented in Tables 11 and 12 for white and black students, respectively. As can be seen from inspecting these tables, the correlations among the social competence measures varied from about 0 to .4, with the median being in the range of about .20 to .25. These correlations suggest relatively weak relationships regardless of the nature of method versus trait variance. Several examples of method versus trait variance can be identified in this table. For example, the ABIC Peer Relations Scale and the Parent SBA and Teacher SBA interpersonal domain would appear to be measuring similar attributes. All three measures use the technique of third party respondent, but the ABIC and the Parent SBA are administered to the parent whereas the teacher, of course, is the respondent for the Teacher SBA. The correlation between the Parent SBA and the ABIC peer would presumably reflect some degree of method variance. In contrast, the difference in the correlation among the ABIC and the Teacher SBA versus the ABIC and the Parent SBA would reveal the degree to which there is trait rather than method variance. As can be seen by inspecting these correlations, most of the variance would be regarded as method, not trait.

Convergent Validity. In the standard MTMM analysis, three sets of correlations are examined. Evidence for convergent validity is provided by the correlations of different measures of the same trait when different measurement methods are used. These are called the homotrait-heteromethod correlations. The homotrait-heteromethod correlations for the social competence measures are presented in Table 13. On the basis of judgment using the trait name as well as item content, decisions were made concerning whether or not subtests from different measures were measuring the same trait. For example, we decided that the CABS Socialization Scale

Table 11

Correlations of ABIC Scales and Other Social Competence Measures for White Regular Education Students

ABIC	FAM	Comm	Peer	Non-Acad. Sch.	E/C	Self Main	AVE
PSBA							
E	.25	.23	.25	.17	.32	.34	.30
I	.30	.35	.42	.28	.27	.37	.39
SR	.26	.33	.28	.28	.15	.36	.32
TR	.32	.28	.31	.28	.25	.43	.36
TOT	.34	.36	.39	.31	.28	.43	.41
TSBA							
E	.21	.12	.09	.18	.11	.23	.18
I	.17	.14	.10	.20	.08	.17	.16
SR	.13	.14	.13	.22	.06	.23	.18
TR	.22	.20	.14	.31	.06	.29	.24
TOT	.21	.18	.13	.27	.08	.25	.22
SOC M							
P	.12	.17	.18	.20	.01	.11	.16
W	.10	.18	.28	.21	.04	.15	.18
SPR	.03	.07	.13	.14	.02	.07	.08
CABS							
LD	.07	.07	.18	.12	.06	.13	.12
IF	.14	.15	.17	.20	.18	.21	.21
F	.19	.20	.18	.14	.17	.15	.21
EV	.27	.31	.22	.32	.39	.38	.37
SOC	.19	.18	.25	.20	.11	.19	.22
TOT	.28	.29	.31	.31	.29	.33	.36

PSBA, TSBA: E = Environmental; I = Interpersonal; SR = Self-Related; TR = Task-Related

CABS: LD = Language Development; IF = Independent Functioning; F = Family; EV = Economic-Vocational; SOC = Socialization

SOC M: P = Play With; W = Work With; SPR = Structured Peer Assessment

and the ABIC Peer Relations scale were measuring the same trait. Furthermore, we determined that four different methods of measurement were reflected in the array of measures used in this investigation. These four methods were: 1) Use of parent as the respondent as used in the Parent SBA and the ABIC, 2) Use of the teacher as respondent as in the standard form of the SBA, 3) Direct assessment of the child as in the CABS, and 4) Use of peers to provide information on social competence as in the classroom sociometrics.

Table 12

Correlations of ABIC Scales and Other Social Competence Measures for Black Regular Education Students

ABIC	FAM	Comm	Peer	Non-Aced. Sch.	E/C	Self Main	AVE
PSBA							
E	.31	.29	.42	.33	.24	.30	.35
I	.16	.12	.25	.11	.16	.15	.17
SR	.14	.14	.23	.12	.13	.18	.18
TR	.16	.18	.21	.18	.13	.26	.21
TOT	.20	.18	.32	.20	.17	.22	.24
TSBA							
E	.26	.28	.27	.11	.09	-.18	.23
I	.05	.06	.01	.02	.03	.07	.01
SR	.17	.17	.17	.08	.06	-.12	.15
TR	.15	.12	.13	.04	.02	.03	.09
TOT	.14	.14	.12	.04	.00	.03	.09
SOC M							
P	.00	-.01	.07	.03	.01	.12	.04
W.	-.11	-.09	.09	.00	-.03	.10	-.01
SPR	.10	.11	.12	.13	.07	.34	.16
CABS							
LD	.12	.02	.20	.00	.05	.07	.09
IF	.18	.20	.28	.27	.17	.27	.26
F	.29	.29	.25	.23	.16	.26	.27
EV	.02	.09	.14	.10	.08	.07	.09
SOC	.03	.16	.36	.20	.00	.03	.15
TOT	.18	.24	.32	.26	.16	.18	.25

PSBA / TSBA: E = Environmental; I = Interpersonal; SR = Self-Related; TR = Task-Related

SOC M: P = Play With; W = Work With; SPR = Structured Poor Assessment

CABS: LD = Language Development; IF = Independent Functioning; F = Family; EV = Economic-Vocational; SOC = Socialization

The correlations presented in Table 13 reflect homotrait-heteromethod pairs. As can be seen from inspection of Table 13, none of the correlations are particularly large and many are not significantly different from zero. The highest correlation for any of the combinations occurred with white students on the CABS Economical/Vocational and ABIC Earner/Consumer Subtests. However, the correlation for that particular pair of subtests for black students was not significantly different from zero suggesting no relationship at all. Thus, this particular relationship

Table 13

Homotrait-Heteromethod Correlations

of Social Competence Measures

For Non-Handicapped Students

	White	Black
CABS - SOC X ABIC - PEER	.25*	.36**
CABS - SOC X TSBA - INTER	-.11	-.10
CABS - SOC X PSBA - INTER	.08	-.19
ABIC - PEER X TSBA - INTER	-.10	-.01
CABS - SOC X SOC M - PLAY	.17	.01
CABS - SOC X SOC M - WORK	.13	.19
ABIC - PEER X SOC M - PLAY	.18	.07
ABIC - PEER X SOC M - WORK	.28**	.09
TSBA - INTER X SOC M - PLAY	-.20*	-.23*
TSBA - INTER X SOC M - WORK	-.21*	-.30**
PSBA - INTER X SOC M - PLAY	-.22*	-.06
PSBA - INTER X SOC M - WORK	-.27**	-.15
CABS - ECON/VOC X ABIC - EARN/CON	.39***	.08
CABS - INDEP X ABIC - SELF MAIN	.21*	.27*
CABS - FAM X ABIC - FAM	.19	.29*

* p .05
** p .01
*** p .001

was not stable across groups. Other, though less dramatic, discrepancies among black and white students occurred. The correlations which did meet the criterion of statistical significance do support the inference that there was some trait variance independent of method variance. However, the amount of trait variance was rather small.

Discriminant Validity. In the MTMM discriminant validity is indicated by the difference between the homotrait-heteromethod correlations

and the heterotrait-heteromethod correlations. If the correlations presented in Table 13 are significantly larger than correlations of pairs of subtests reflecting different traits and different methods, evidence for discriminant validity is established. We then examined the correlations involving the other pairs of subtests, a total of 128 correlations for each of the groups, black and white. The range of these correlations was about zero to .4 with a median of approximately .2. If this median value is applied to the various correlations presented in Table 13, i.e., .2 is subtracted from each of those correlations, it soon becomes apparent that relatively little discriminant validity exists with these measures of social competence.

Method Variance. The method of measurement variance in a MTMM analysis is indicated by the correlations among measures of different traits using the same methods. Correlations among ABIC subtests and Parent SBA subscales, e.g. ABIC Peer Relations with Parent SBA Task Related, would reflect the relationship among different traits using the same method of measurement. For white students, these correlations varied from -.15 to -.43 with a median of .28. For black students the same set of 24 correlations varied from -.11 to -.24 with a median of .18. Comparison of the magnitude of these two correlations with the other correlations reported in Table 13 suggests, quite strongly, that method variance is at least part of the relationship among the different measures of social competence.

Another way to examine method variance is to consider the intercorrelations among the subscales on each of the instruments. For the Parent SBA these correlations varied from .51 to .75 with a median of .60. The subscales on the Teacher SBA varied from .56 to .75 with a median of median of .69. On the CABS these correlations varied from .04 to .49 with a median of .26. Finally, for the sociometrics, the Play With - Work With correlation was .85. Again, these data suggest rather substantial degrees of method variance. The instrument with the least amount of this type of method variance, the CABS, yielded considerably lower subtest correlations with the median of only .26. This is a desirable outcome from the point of view of MTMM analysis. Unfortunately, this outcome may have been due to the CABS ceiling effects mentioned earlier. These ceiling effects were most pronounced with white regular education students.

For black students, the correlations of subtests on the same scale revealed similar patterns. On the Parent SBA, the correlations varied from .37 to .80 with a median of .58. On the Teacher SBA, the correlations varied from .72 to .84 with a median of .80. On the ABIC these correlations varied from .60 to .88 with a median of .74. The correlation

between the sociometrics, Play With and Work With, was .74 for black students. Finally, the correlations among the CABS subtests were .21 to .65 with a median of .43. Again, the lowest correlations among various subtests on any given scale were found for the CABS. As noted above for white students, this may have been due to ceiling effects.

Summary. In this section various MTMM analyses were reported. These analyses were applied only to the social competence measures. Based on these results it is quite apparent that the social competence measures do not have a high degree of trait variance, independent of method variance. Measures which apparently assess the same trait, as judged by item content and subscale name, had relatively low correlations for both samples. These results, however, may be viewed differently when interpreted from a behavioral assessment rather than a purely psychometric perspective. The major assumption in behavioral assessment (see Nelson & Hayes, 1979) is the notion that behavior is situation specific. In other words, one does not assume or necessarily expect behavior in one situation (e.g., school) to be the same in other situations (e.g., home and community settings). The relatively low agreement between teacher, parent, and peer social competence measures may simply be reflecting actual behavioral differences as a function of diverse settings or situations rather than psychometric inadequacies of the social competence instruments. In turn, the low degree of trait variance (i.e., high correlations between different traits measured by the same method) may be reflecting similar behavioral functioning in the same situation or setting rather than invalidity. Nonetheless, these results suggest that a considerable amount of work needs to be devoted to instrument development in this area, and that results from existing measures should be interpreted cautiously.

Additional Studies

Several additional studies have been completed and a number of further analyses are underway or are planned (see reference notes). These analyses will go beyond the research questions established in the original proposal and discussed in this report. Therefore, these studies will not be described in detail here. The short summaries provided are intended to inform interested readers of the existence of the studies. More information can be obtained by contacting any of the authors of this report.

Factor Analysis. Susan Graham-Clay (Note 1) conducted a factor analytical investigation of three of the major instruments in this study, the ABIC, the CABS, and the WISC-R. This study revealed low but significant correlations between the CABS and the WISC-R scales, but

virtual independence of the ABIC subscales and the WISC-R I.Q.s. The factor analytic results suggested three factors which pretty much conformed to the content of the different measures. These three measures apparently are largely independent, suggesting that each could contribute unique information to classification/placement decisions. Subsequent investigations need to be conducted to determine the validity of these instruments, particularly for the newer instruments attempting to assess adaptive behavior. Criterion related validity studies for the CABS and the ABIC are needed before we conclude that the instruments are useful as well as unique. This study also showed quite clearly that just because two instruments have the same name, e.g., ABIC and CABS, the underlying constructs that are measured are not necessarily the same. This result can again be interpreted as reflecting the substantial method variance that apparently exists with social competence measures.

Teacher vs. Parent Social Skills Ratings. James Lorenz (Note 2) compared the social skills ratings by parents and teachers using the standard form of the SBA and the experimental form of the SBA adapted for parents. This investigation yielded a number of very interesting results. First, the parent version was highly reliable. The content validity of this adaptation also was supported by results indicating very few "zero" scores which result when the parent has little or no opportunity to observe the behavior. In fact, more zero ratings were obtained from classroom teachers, the group for whom the original SBA was designed. These results would strongly suggest that the Parent SBA has considerable potential. The second interesting finding was the fact that parent ratings of social skills were somewhat lower than teacher ratings of social skills. In contrast to other studies, which usually report higher ratings by parents than teachers, the usual differential between parents and teachers was not found. A number of hypotheses were advanced in an effort to explain this finding. Further investigation of this result is planned. Finally, although boys were generally rated lower than girls, this result was not uniform across all subdomains. In some instances, girls received lower ratings. The findings of this study were restricted to the sample of white mildly handicapped students. Other samples in this investigation, the regular education white sample, and both black samples, will be studied using similar research questions and data analyses.

Discriminant Validity of the SBA. In another study which focused on the SBA, Steve Marty (Note 3) investigated the degree to which the SBA differentiated between students classified as high or low in sociometric status. The students' sociometric status was determined by a combination of the Play With and Work With sociometric scales. Use of the 30 SBA subdomains resulted in correct classification of the actual sociometric status of 70% of the regular education samples and 77% of the mildly handicapped samples. These results were seen as providing reasonably strong

support for the discriminant validity of the SBA.

Prediction of Achievement. A thesis by Linda Zwald (Note 4) addressed issues concerning criteria for achievement and equality of prediction for blacks and whites. The criteria for achievement were the Peabody Individual Achievement Tests, the Teacher Rating Scale (both of which were included in this investigation with all students) and a Semantic Differential Scale developed by Mercer (1979). The general result was equal validity for black and white students across the three measures of achievement using the WISC-R Full Scale IQ as the predictor variable. These results are consistent with other recent research but counter to claims in the literature of differential validity. These claims of differential validity were fundamental to issues concerning test bias and the Larry P. court decision (Reschly, 1982).

Summary. As noted previously, several additional studies are underway or are planned. Interested readers are encouraged to contact either Daniel Reschly at Iowa State University or Frank Gresham at Louisiana State University for copies of the manuscripts reporting the results of additional analyses from this investigation.

CONCLUSIONS

The most general issue examined in this study was the usefulness of social competence measures in preplacement or re-evaluations of mildly handicapped students. Although there is no way to establish an absolute unequivocal conclusion, it is our strong and considered judgment that social competence measures are highly useful in special education classification/placement decisions. It is significant that the mildly handicapped students included in this study did, as a group, exhibit significant deficits on the social competence measures. This result was obtained for both white and black samples. This is a particularly important finding in view of the fact that social competence criteria were probably not used in the classification decisions with these students, nor were social competence criteria part of the classification diagnostic constructs (learning disability, mild mental retardation, and slow learner) involved with these samples. Social competence deficits were probably part of the reason for referral for many of these students. Although admittedly highly speculative, we wonder if a major difference between underachievers and students placed in learning disability programs is in the realm of social competence. We are well aware of the research by Ysseldyke and colleagues (1983), suggesting no differences between underachievers and students classified as learning disabled. However, these investigations were generally restricted to ability and achievement variables. Perhaps learning disabled students and underachievers have similar academic problems, but those referred and then classified as learning disabled have additional problems with social competence. Additional research on this possibility would certainly seem to be indicated.

The inclusion of a variety of social competence measures in this investigation provided evidence on the complexity of these constructs. The social competence measures leave a good deal to be desired in terms of convergent and divergent validity. The multitrait-multimethod (MTMM) examination of the social competence measures yielded disappointing results. With the social competence measures included in this study, there was relatively little evidence suggesting greater trait than method variance.

Despite the disappointing findings in the MTMM analyses, the social competence measures clearly differentiated between special and regular education placements for both black and white students. One combination of social competence measures produced 100% correct classifications for black, regular and special education students. The other results in that analysis, although not as impressive as the finding just cited, clearly supported the suggestion that social competence is probably an important

component of the complicated process whereby some students are classified as mildly handicapped.

We recommend that social competence measures be used as part of preplacement evaluations, during reevaluations of students classified as mildly handicapped, and as part of the process where general needs are assessed in the development of individualized educational programs. We regard the current array of social competence instruments as useful for screening purposes. They are not sufficiently valid to be used as the sole basis for a diagnosis of social competence deficits nor is it appropriate to use them as the sole basis for the development of an IEP objective. These instruments are sufficiently well developed to indicate general areas of need which should then be further assessed through behavioral observation or subsequent interviews. For example, a student with very low SBA scores, should be observed in appropriate settings to further assess deficits in specific social skills. Interviews and other checklists can also help pinpoint specific deficits. These results could then be used, if consistent across methods of measurement, in making decisions about social competence deficits and in determining whether or not social competence objectives should be part of the student's individualized educational program (Gresham, 1983).

Social competence measures are relatively economical to administer, score, and interpret. Most of these measures involved checklists which can be given to an appropriate adult who, in the course of 10 to 20 minutes depending on the instrument, can provide the necessary information. Furthermore, we found little or no resistance among teachers and parents toward providing this kind of information. We were particularly concerned about the possible reactivity of the sociometric measures administered to peers. We encountered no difficulties in the collection of the sociometric data. We urge that those kinds of measures be used cautiously. But our results would certainly indicate that these measures are acceptable in most school situations.

The results of this investigation further validate the involvement of parents and regular classroom teachers in collection of data concerning mildly handicapped students. There are now a variety of techniques, several of which were used in this study, which can be used by parents and teachers to yield quite useful information. We believe those techniques provide a more complete perspective on the child's strengths/weaknesses and needs for remedial or compensatory educational programming. Although trite, we hesitate to end this report without the usual call for additional research in this area. The research in social competence assessment thus far has yielded very useful results. These results are promising and

further investigations are quite likely to lead to further development of sound and useful procedures to assess social competence. These procedures and the interventions that can follow, have considerable promise for improving the effectiveness of educational and psychological interventions with mildly handicapped students.

Reference Notes

Note 1. Graham-Clay, S. L. (1982). A critical examination of the relationship between adaptive behavior and ability measures. Unpublished Specialist Degree Thesis, Department of Psychology, Iowa State University, Ames, IA 50011.

Note 2. Lorenz, J. P. (1982). A comparison of social skill ratings by parents and teachers of mildly handicapped children using the Social Behavior Assessment Inventory. Unpublished Specialist Degree Thesis, Department of Psychology, Iowa State University, Ames, IA 50011.

Note 3. Marty, S. M. (1983). The discriminant validity and factor structure of the Social Behavior Assessment. Unpublished Specialist Degree Thesis, Department of Psychology, Iowa State University, Ames, IA 50011.

Note 4. Zwald, L. L. (1982). Comparisons of the WISC-R predictions using three criteria of academic competence for black and white students. Unpublished Specialist Degree Thesis, Department of Psychology, Department of Psychology, Iowa State University, Ames, IA 50011.

References

Campbell, D. T. & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81-105.

Coulter, W. A. & Morrow, H. W. (1978). Adaptive behavior: Concepts and measurements. New York: Grune & Straton.

Doll, E. A. (1941). The essentials of an inclusive concept of mental deficiency. American Journal of Mental Deficiency, 46, 214-219.

Doll, E. A. (1953). Measurement of social competence. Circle Pines, MN: American Guidance Service.

Federal Register (1977). Regulations Implementing Education for All Handicapped Children Act of 1975 (Public Law 94-142). Author, August 23, p. 42474-42518.

Fisher, A. (1978). Four approaches to classification in mental retardation. Paper presented at the annual meeting of the American Psychological Association.

Greenspan, S. (1979). Social intelligence in the retarded. In N. R. Ellis (Ed.) Handbook of mental deficiency, psychological theory and research (2nd Ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Gresham, F. (1981a). Social skills training with handicapped children: A Review. Review of Educational Research, 51, 139-176.

Gresham, F. (1981b). Assessment of children's social skills. Journal of School Psychology, 19, 120-133.

Gresham, F. (1981c). Validity of social skills measures for assessing social competence in low-status children: A multivariate investigation. Developmental Psychology, 17, 390-398.

Gresham, F. (1982). Misguided mainstreaming: The case for social skills training with handicapped children. Exceptional Children, 48, 422-433.

Gresham, F. (1983). Social skills assessment as a component of mainstreaming placement decisions. Exceptional Children, 49, 331-336.

Gresham, F. (1985a). In J. Grimes and A. Thomas (Eds.) Best practices manual. Washington D.C.: National Association of School Psychologists.

Gresham, F. (1985b). Conceptual issues in the assessment of social competence in children. In P. Strain, M. Guralnick, & H. Walker (Eds.), Children's social behavior: Development, assessment, and modification. New York: Academic Press.

Gresham, F. (1985c). The effects of social skills training on the success of mainstreaming. In J. Meisel (Ed.), The consequences of mainstreaming handicapped children. Hillsdale, NJ: Lawrence Erlbaum.

Gresham, F., & Nagle, R. (1980). Social skills training with children: Responsiveness to modeling and coaching as a function of peer orientation. Journal of Consulting and Clinical Psychology, 48, 718-729.

Grossman, H. J. (Ed.) (1983). Classification in mental retardation. Washington D. C.: American Association on Mental Deficiency.

Heller, K., Holtzman, W. & Messick, S. (Eds.) (1982). Placing children in special education: A strategy for equity. Washington D. C.: National Academy Press.

Kaufman, A., & Doppelt, J. (1976). Analysis of WISC-R standardized data in terms of stratification variables. Child Development, 47, 165-171.

Mercer, J. (1979). System of Multicultural Pluralistic Assessment Technical Manual. New York: Psychological Corporation.

Nelson, R., & Hayes, S. (1979). Some current dimensions of behavioral assessment. Behavioral Assessment, 1, 1-16.

Reschly, D. (1979). Nonbiased assessment. In G. Phye & D. Reschly (Eds.), School psychology: Perspectives and issues. New York: Academic Press.

Reschly, D. (1981). Evaluation of the effects of SOMPA measures on classification of students as mildly retarded. American Journal of Mental Deficiency, 86, 16-20.

Reschly, D. (1982). Assessing mild mental retardation: The influence of adaptive behavior, sociocultural status and prospects for nonbiased assessment. In C. Reynolds & T. Gutkin (Eds.), The handbook of school psychology. New York: Wiley Interscience.

Reschly, D. J. (1984). Beyond IQ test bias: The national academy panel's analysis of minority EMR overrepresentation. Educational Researcher, 13(3), 15-19.

Reschly, D. (1985). Adaptive behavior. In J. Grimes and A. Thomas (Eds.) Best practices manual. Washington D. C.: National Association of School Psychologists.

Reschly, D., Grimes, J. & Ross-Reynolds (1981). State Norms for IQ, Adaptive Behavior, and Sociocultural Background: Implications for Nonbiased Assessment. Des Moines, Iowa: Iowa Department of Public Instruction. Also available in ERIC, ED NO 209811 or ERIC, EC NO 140315.

Richmond, B. & Kicklighter, R. (1980; 1983). Childrens Adaptive Behavior Scale Revised and Expanded Manual. Atlanta: Humanics Ltd.

Salvia, J. & Ysseldyke, J. (1981). Assessment in Special and remedial education, (2nd Ed.). Boston: Houghton-Mifflin.

Scott, L. (1979). Identification of declassified students: Characteristics and needs of the population. Paper presented at the annual meeting of the American Psychological Association.

Shepard, L. A. (1983). The role of measurement in educational policy: Lessons from the identification of learning disabilities. Educational Measurement: Issues and Practice, 2, 4-8.

Stephens, T. M. (1978). Social skills in the classroom. Columbus, OH: Cedars Press.

Talley, R. (1979). Evaluating the effects of implementing SOMPA. Bloomington, IN: Center for Innovation in Teaching the Handicapped, University of Indiana.

Thorndike, E. L. (1927). The measurement of intelligence. New York: Bureau of Publications, Teachers College, Columbia University.

Ysseldyke, J. E., Thurlow, M., Graden, J., Wesson, C., Algozzine, B. & Deno, S. (1983). Generalizations from five years of research on assessment and decision making: The University of Minnesota Institute. Exceptional Education Quarterly, 4, 75-93.

Appendix A

Parent Social Behavior Assessment

An Adaptation of T. Stephens' Social Behavior Assessment by Pamela Crouch

SOCIAL BEHAVIOR ASSESSMENT*

Child's Name _____ Sex ☐ Female ☐ Male
Last First Middle

Parents' Name _____
Last Father Mother

Home Address _____
Street City State

Birthdate _____ Age _____
Month Day Year

Current School Grade _____

Type of Program _____

Number of Siblings at each age level

0-2 ____ 2-4 ____ 4-6 ____ 6-8 ____ 8-10 ____ 10-12 ____ 12-14 ____

14-16 ____ 16-18 ____ Above 18 ____

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* This scale is an adaptation of the SOCIAL BEHAVIOR ASSESSMENT by Tom Stephens, Cedars Press, Inc. The adaptation was made by Pam Crouch of Iowa State University

DIRECTIONS FOR PARENT

Please rate your child's present level of performance on the scale items in the following manner:

Put a 0 in the blank by the item if you have had no opportunity to see that behavior or the item is not applicable to your child.

Example:

Reads aloud to parents __0__
0 might be given if your child cannot yet read.

Put a 1 in the blank by the item if this behavior is exhibited by your child at acceptable levels.

Example:

Uses eating utensils properly __1__
1 might be given if a preschooler uses a spoon and fork correctly.

Put a 2 in the blank by the item if this behavior is exhibited at a lower than acceptable level.

Example:

Knows and follows home rules __2__
2 might be given if your child follows rules only when reminded.

Put a 3 in the blank by the item if this behavior is never exhibited but is able to perform it.

Example:

Hangs clothes in required place __3__
3 might be given if your child is capable of hanging up clothes, but does not do it.

FOR OFFICE USE ONLY

Subject _____ Sibs _____

Age _____ Program _____

ENVIRONMENTAL BEHAVIORS - ER

Care for the Environment - CE

Disposes of trash in the proper container. ____

Drinks properly from cup or glass. ____

Cleans up after breaking or spilling something. ____

Uses household equipment and materials correctly. ____

Uses outdoor equipment safely ____

Total - CE ____

Dealing with Emergency - DE

Follows rules for emergencies. ____

Identifies accident or emergency situations which should be reported. ____

Reports accidents or other emergencies to parent. ____

Total - DE ____

Lunchroom - LR

Uses eating utensils properly. ____

Handles and eats only own food. ____

Disposes of unwanted food properly. ____

Total - LR ____

Movement Around Environment - MO

Moves with appropriate speed and care in home such as walking in kitchen when parent is cooking. ____

Enters places such as doctor's offices and takes seat without disturbing objects and others. ____

Walks with parents in stores and other public places as necessary. ____

Follows safety rules in crossing streets. ____

Total - MO ____

INTERPERSONAL BEHAVIORS - IP

Accepting Authority - AA

Complies with requests of adults who are in positions of authority. ____

Complies with requests of peers and siblings who are in positions of authority. ____

Knows and follows home rules. ____

Follows home rules in the absence of the parent. ____

Questions rules which may be unjust. ____

Total - AA ____

Coping with Conflict - CC

Responds to teasing or name-calling by ignoring, changing the subject, or some other constructive means. ____

Responds to physical assault by leaving the situation, calling for help, or some other constructive means. ____

Walks away from peers and siblings when angry to avoid hitting. ____

Refuses requests of others politely. ____

Expresses anger with non-aggressive words rather than physical action or aggressive words. ____

Handles constructively criticism or punishment perceived as undeserved. ____

Total - CC ____

Gaining Attention - GA

Gains parent's attention by appropriate means such as asking quietly. ____

Waits quietly for recognition before speaking to parents when they are busy. ____

Uses "please" and "thank you" when making requests of others. ____

Approaches parent and asks appropriately for help, explanations, instructions, and so forth. ____

Gains attention from peers and siblings in appropriate ways. ____

Asks peers and siblings for help.. ____

Total - GA ____

Greeting Others - GR

Looks others in the eye when greeting them. ____

States name when asked. ____

Smiles when encountering friends or acquaintances. ____

Greets adults and peers by name. ____

Responds to an introduction by shaking hands and saying "how do you do." ____

Introduces one's self to another. ____

Introduces two people to each other. ____

Total - GR

Helping Others - HP

Helps parent when asked. ____

Helps peer or sibling when asked. ____

Gives simple directions to peers or siblings. ____

Offers help to parent. ____

Offers help to sibling. ____

Comes to defense of peer or sibling in trouble. ____

Expresses sympathy to peers or siblings about problems or difficulties. ____

Total - HP ____

Making Conversation - MC

Pays attention in a conversation to the person speaking. ____

Talks to others in a tone of voice appropriate to the situation. ____

Waits for pauses in a conversation before speaking. ____

Makes relevant remarks in a conversation with peers or siblings. ____

Makes relevant remarks in a conversation with adults including parents. ____

Ignores interruptions of others in a conversation. ____

Initiates conversation with peers or siblings in informal situations. ____

Initiates conversation with adults including parents in informal situations. ____

Total - MC ____

Organized Play - OP

Follows rules when playing games. ____

Waits turn when playing games. ____

Displays best effort in competitive games. ____

Accepts defeat and congratulates the winner in competitive games. ____

Total - OP ____

Positive Attitude Toward Others - PA

Makes positive statements about qualities and accomplishments of others. ____

Compliments others. ____

Displays tolerance for others with characteristics different from one's own. ____

Total - PA ____

Plays Informally - PL

Asks other children to play. ____

Asks to be included in a play activity in progress. ____

Shares toys and equipment in play situations. ____

Gives in to reasonable wishes of the group in play situations. ____

Suggests an activity for the group outdoors. ____

Total - PL ____

Property: Own and Others - PR

Distinguishes one's own property from that of others. ____

Lends possessions to others when asked. ____

Uses and returns other's property without damage. ____

Asks permission to use another's property. ____

Total - PR ____

SELF-RELATED BEHAVIOR - SR

Accepting Consequences - AC

Reports to parent when something has been spilled or broken. ____

Apologizes for hurting or infringing on others. ____

Accepts consequences for wrong-doing. ____

Total - AC ____

Ethical Behavior - EB

Distinguishes truth from untruth. ____

Answers when asked about wrong-doings. ____

Identifies consequences of behavior involving wrong-doing. ____

Avoids wrong-doing when encouraged by peers or siblings. ____

Total - EB ____

Expressing Feelings - EF

Describes one's own feelings or moods verbally. ____

Recognizes and labels moods of others. ____

Total - EF ____

Positive Attitude Toward Self- PA

Says "Thank you" when complimented or praised. ____

Willingly has work displayed. ____

Makes positive statements about self. ____

Undertakes new tasks with positive attitudes. ____

Total - PA ____

Responsible Behavior - RB

Attends school regularly without fuss. ____

Is ready for school on time without frequent parental prodding. ____

Hangs clothes in required place. ____

Maintains orderly room. ____

Takes care of possessions. ____

Carries messages for parent. ____

Brings required materials home from school. ____

Total - RB ____

Self-Care - SC

Uses toilet facilities properly. ____

Puts on clothes without assistance. ____

Keeps face and hands clean. ____

Total - SC ____

TASK RELATED BEHAVIORS - TR

Asking and Answering Questions - AQ

Tries to answer questions when asked by parents. ____

Indicates when answers are not known. ____

Volunteers answers to parent's or other adult's questions. ____

Asks appropriate questions. ____

Total - AQ ____

Attending Behavior - AT

Looks at adult when instructed. ____

Quietly watches TV shows. ____

Listens to speakers such as in church or meetings. ____

Total - AT ____

Classroom Discussion - CD

Uses appropriate tone of voice in family discussions. ____

Makes relevant remarks in family discussions. ____

Participates in family discussions conducted by parents or siblings. ____

Shares relevant items in family discussion. ____

Discusses contrary opinions in family discussions. ____

Provides reasons for opinions expressed. ____

Total - CD ____

Completing Tasks - CT

Completes assignments or chores. ____

Completes assignments or chores within required time. ____

Persists at tasks until completed. ____

Tells parents when task is completed. ____

Total - CT ____

Follows Directions - FD

Follows parent's verbal directions. ____

Follows written directions. ____

Follows directions for use of toys, etc. ____

Total - FD ____

Group Activities - GA

Shares materials when doing tasks. ____

Works cooperatively with a peer or sibling on a task. ____

Follows plans and decisions of a group, either family or friends. ____

Accepts group's ideas that differ from his or her own. ____

Initiates and assists in conducting a group activity. ____

Total - GA ____

Independent Work - IW

Tries tasks prior to getting help. ____

Uses time productively while waiting for assistance. ____

Finds acceptable ways to use free time. ____

Total - IW ____

Performing Before Others - PF

Participates in games like charades. ____

Reads aloud to parents. ____

Reads aloud to family. ____

Gives report of day's activities to family. ____

Gives report of activities to people outside of family. ____

Total - PF ____

Quality of Work - QW

Brings home neat papers. ____

Accepts corrections of work. ____

Makes use of corrections to improve work. ____

Checks work for errors. ____

Total - QW ____

Appendix B

Work with Sociometric

Play with Sociometric

Structured Peer Assessment

WORK WITH RATING SCALE

Directions: Put the number of the face that tells how much you like to work with each person in your class in the box beside their name. Work with means things like being in reading group, doing assignments together, going to the library, and helping one another out on things like reading, arithmetic, science, and other school subjects. Do not rate yourself.

1
Not at All
1

2
Not Much
2

3
Doesn't Matter
3

4
A Little
4

5
A Lot
5

☐_____ ☐_____ ☐_____ ☐_____

☐_____ ☐_____ ☐_____ ☐_____

☐_____ ☐_____ ☐_____ ☐_____

☐_____ ☐_____ ☐_____ ☐_____

☐_____ ☐_____ ☐_____ ☐_____

PLAY WITH RATING SCALE

School _____ Grade _____

Teacher _____ Your Name _____

Directions: Put the number of the face that tells how much you like to play with each person in your class in the box beside their name. Do not rate yourself.

1	2	3	4	5
Not at All	Not Much	Doesn't Matter	A Little	A Lot
1	2	3	4	5

_____

☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____ ☐ _____

SPA

DIRECTIONS:

The purpose of this activity is to find out which people in the class do certain things more than others. You will see 13 sentences listed down the side of the page and several people's names listed across the page. Rate each of the students listed as follows:

3 = If the person does the following things a lot.
2 = If the person does these things sometimes.
1 = If the person never does these things.
0 = If you don't know this person.

3 = A lot

2 = Sometimes

1 = Never

0 = Don't know person

Statements / name						
1. Says nice things to others.						
2. Says please and thank you.						
3. Smiles at others.						
4. Says hello to others.						
5. Listens to others.						
6. Helps others.						
7. Shares with others.						
8. Says excuse me.						
9. Waits his turn when playing.						
10. Participates in school activities.						
11. Fun to talk to.						
12. Is liked by others.						
13. Follows rules in games and class.						